

Beam Monitoring Data

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Beam Monitor Data Channelling Process

- Primary proton and secondary hadron/muon monitors
- Reads from “ACNET” via an XML-RPC intermediate server
- Writes RawBlocks to rotorooter like DAQ or DCS

- ACNET: hardware/software reading out FNAL beam devices. VMS based and difficult to use. (Used at BNL ATF beam tests).
- XML-RPC: Protocol for doing Remote Procedure Calls by using an XML (text) data format on top of HTTP “POST” requests. Implementations in Perl (trivial and powerful) and C++ (less so)

Beam Division's XML-RPC System

- Provides 2 URLs:
 - For simple query/response:
`http://www-bd.fnal.gov/xmlrpc/Accelerator`
Post list of devices, get their values in the response.
 - For registering callbacks:
`http://www-bd.fnal.gov/xmlrpc/Export`
Post a list of devices, a trigger devices and the URL of another XML-RPC server to call back with the results when triggered.
- Acts as a proxy for reading from ACNET

- BeamData package
- Requirements doc (\rightarrow)
- Test implementation working
- Currently implemented in Perl + SWIG wrappers around libRotoTalk.

Operation

1. Start `rotorooter`
2. Start `bmchanneld`
3. `bmchanneld` connects to Beam Divisions XML-RPC server (BDX) with a list of readout devices, a trigger and a URL.
4. `bmchanneld` goes into listen mode (becomes an XML-RPC server) on that URL
5. BDX calls back each time a trigger occurs.
6. `bmchanneld` receives BDX POSTs
7. `bmchanneld` queries for out of spill data.

Configuration

- List of in-spill and trigger devices
- List of out-of-spill devices
- Delay after trigger to read OOS devices
- Trigger period to read OOS devices
- Hosts, URLs, ports, etc.

- Array type devices partially implemented on XML-RPC end. Not tested.
- No offline side classes written
- Only tested with simple devices, actual devices still being definition.
- Not much response to requirements doc.